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10/753,246

01/08/2004

James P. Lavine

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09/06/2005

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EXAMINER

KANG, DONGHEE

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/753,246

Applicant(s)

LAVINE, JAMES P.

Examiner

Donghee Kang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/8/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 9-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 7-13-05.

Information Disclosure Statement

2. Acknowledgment is made of receipt of applicant's Information Disclosure Statement (PTO-1449) filed January 8, 2004.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8 & 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US 6,040,593) in view of Rhodes (US 6,852,591).

Re claim 1, Park teaches an imager sensor comprising (Fig.3):

A semi-conducting substrate (311-312) having a photosensitive region (318-319) and doping (324a) for forming a path to a charge-to-voltage mechanism; a dielectric (315) spanning the substrate; and a semi-conducting layer (316) spanning the dielectric which contains electrode and circuit elements that control flow of charge. Park does not teach the semi-conducting layer having a thickness less than 1 micrometer. Rhodes

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teach the semi-conducting layer 108 having a thickness less than 1 micrometer (Col.8, lines 54-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the thickness of semi-conducting layer less than 1 micrometer in order to obtain a desired properties for the gate electrode.

Furthermore, it is an obvious matter of routine experimentation to find the optimal thickness ranges. Generally, difference in thickness will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such thickness is critical.

Re claims 2 & 13, Park teaches the semi-conducting substrate and semi-conducting layer are silicon (Col.3, lines 50-60).

Re claims 3 & 14, Park does not explicitly teach the dielectric layer being silicon dioxide. Rhodes teaches the dielectric layer 100 being made of silicon dioxide (Col.8, lines 47-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a silicon dioxide as a gate electrode since it is a known material well suited for the intended purpose.

Re claims 4 & 15, Park teaches the semi-conducting substrate includes an epitaxial layer.

Re claims 5 & 16, Park teaches the image sensor further comprising doping (324b) for a reset transistor in the semi-conducting substrate and a reset gate in the semiconductor layer.

Re claims 6 & 17, Park teaches the photo-sensitive region is a photodiode.

Re claims 7 & 18, Park teaches the charge-to-voltage mechanism is a floating diffusion.

Re claims 8 & 19, Park teaches the image sensor is a CMOS image sensor. Re claim 12, Park does not explicitly teach the CMOS image sensor being used for camera. Rhodes teaches the CMOS sensor used for camera (Col.1, lines 47-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CMOS sensor for the Camera since it is a known device well suited for camera.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 571-272-1656. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Kang Donghee".

Donghee Kang
Primary Examiner
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dhk